

ABSTRACT

A process to prepare stoichiometric-nanostructured materials comprising generating a plasma, forming an “active volume” through introduction of an oxidizing gas into the plasma, before the plasma is expanded into a field-free zone, either (1) in a region in close proximity to a zone of charge carrier generation, or (2) in a region of current conduction between field generating elements, including the surface of the field generation elements, and transferring energy from the plasma to a precursor material to form in the “active volume” at least one stoichiometric-nanostructured material and a vapor that may be condensed to form a stoichiometric-nanostructured material. The surface chemistry of the resulting nanostructured materials is substantially enhanced to yield dispersion stable materials with large zeta-potentials.